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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/493,710	01/28/2000	Gadi Lenz	Lenz 9-12	2563
28221	7590	01/05/2004	EXAMINER	
GLEN E. BOOKS, ESQ. LOWENSTEIN SANDLER PC 65 LIVINGSTON AVENUE ROSELAND, NJ 07068			BELLO, AGUSTIN	
			ART UNIT	PAPER NUMBER
			2633	9

DATE MAILED: 01/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/493,710	LENZ ET AL.	
	Examiner	Art Unit	
	Agustin Bello	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Double Patenting***

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-15 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-18 of U.S. Patent No. 6,289,151 in view of Harvey. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patent and the application claim an all-pass optical filter comprising an input port and an output port, a splitter/combiner, a feedback path, and a plurality of ring resonators. Although the instant application and the patent are not identical, they claim essentially the same invention. The application claims that the all-pass filter is configured to apply a plurality of frequency-dependent time delay periods to the input optical pulse to define a time delay spectrum having a plurality of delay peaks, and the free spectral range of the filter as defined by the spacing between the delay peaks is matched to the regular repetition rate of the input optical pulse. The specification of the application (page 6 lines 8-21) states that the result of the above limitation is the correction of certain dispersion of a pulsed laser which occurs when input optical pulse repeatedly circulates along a feedback path and interferes with itself (page 7

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lines 18-20), but preserves the amplitude of the signal (page 10 lines 21-24). The patent claims that the all-pass filter, constructed of the same components as that of the application, corrects dispersion in a pulsed signal by returning a the signal to a feedback path to interfere with light in the dispersed pulse thereby compensating dispersion in the pulse while substantially preserving the amplitude of each frequency in the pulse. Furthermore, it is well known in the art that the application of heat to a path can change the free spectral range of the group delay and the desired phase. Also, Harvey, in the same field of endeavor, teaches that creating a plurality of time delay periods to that are in synch with the repetition rate of the input pulse is well known in the art. Both the application and the patent claim an all pass optical filter arranged in parallel with a Mach-Zehnder interferometer (e.g. called Mach-Zehnder in the application, and called a plurality of ring resonators arranged as a series of coupled rings in the patent claim 5).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-10 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harvey in the article "Harmonically mode locked fiber ring laser with an internal Fabry-Perot stabilizer for soliton transmission."

Regarding claims 1 and 14, Harvey teaches an article comprising an all-pass optical filter including an input port for receiving an input optical pulse having a regular repetition rate (e.g. 2.5 GHz); an output port; a splitter/combiner a path and a all-pass filter (as seen in Figure 1);

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wherein the all-pass optical filter is configured to apply a plurality of frequency-dependent time delay periods to the input optical pulse to define a time delay spectrum having a plurality of delay peaks (as seen in Figure 2), and the free spectral range of the filter as defined by the spacing between the delay peaks is matched to the regular repetition rate of the input optical pulse (page 107, first column, second paragraph). Harvey differs from the claimed invention in that Harvey fails to specifically teach a feedback path wherein the all-pass optical filter is configured. Instead, Harvey employs the use of a feedforward design and produces the same result as the claimed invention. One skilled in the art would clearly have recognized that either a feedback or a feedforward design would have produced the same results so long as the two signals interfered with one another at a designated point along the loop formed by the option selected. One skilled in the art would have been motivated to select the feedback design option in the interest of size, cost, or compatibility with an established system. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have used a feedback path in order to produce the same results as the feedforward loop design taught by Harvey.

Regarding claim 2, as discussed above a feedback path would have been obvious, and the path of Harvey comprises a ring resonator (as seen in Figure 1) and a heating element for heating a section of the ring resonator (e.g. resistive element described page 108, second column, first paragraph).

Regarding claim 3, Harvey teaches the all-pass optical filter of claim 1 arranged in parallel with a Mach-Zehnder interferometer. (e.g. modulator in Figure 1).

Regarding claim 4, Harvey teaches the all-pass optical filter of claim 1 in which the free-spectral range of the filter is matched to the repetition rate of the pulse train by the free spectral range being equal to the repetition rate (page 107, first column, second paragraph).

Regarding claim 5, Harvey teaches An assembly for use in an optical communication system comprising an optical multiplexer/demultiplexer device including the all-pass optical filter of claim 4 (inherent in the experiment described on page 109).

Regarding claim 6, Harvey teaches the all-pass optical filter of claim 1, in which the free-spectral range of the filter is matched to the repetition rate of the pulse train by the free spectral range being offset from the repetition rate by a sufficiently small degree that each frequency of the pulse train falls within a bandwidth of one of the plurality of delay peaks (as seen in Figure 2).

Regarding claim 7, Harvey teaches an assembly for use in an optical communication system comprising a pulsed laser (2.5 GHz OSC of Figure 1) and the all-pass optical filter (e.g. Fabry-Perot of Figure 1) of claim 6, in which the all-pass optical filter corrects linear chirp of the pulsed laser (as described in the abstract).

Regarding claims 8-10, Harvey teaches the communication system claimed (Figure 1).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Harvey.

Regarding claim 11, Harvey teaches a method of generating a tunable delay for an optical signal with use of a single-stage all-pass optical filter wherein the pulse train of the optical signal has a regular repetition rate, the method comprising matching the spacing between the frequency-dependent time delay peaks generated by the all-pass optical filter to the repetition rate of the pulse train (Figure 1) (Figure 2).

Regarding claim 12, Harvey teaches the method of claim 11, in which the free-spectral range of the filter is matched to the repetition rate of the pulse train by the free-spectral range being equal to the repetition rate (page 107, first column, second paragraph).

Regarding claim 13, Harvey teaches the method of claim 11, in which the free-spectral range of the filter is matched to the repetition rate of the pulse train by the free-spectral range being offset from the repetition rate by a sufficiently small degree that each frequency of the pulse train falls within a bandwidth of one of the plurality of delay peaks. (as seen in Figure 2).

Response to Arguments

7. Applicant's arguments with respect to claims 1-15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (703)308-1393. The examiner can normally be reached on M-F 8:30-6:00.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (703)305-4729. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9314 for regular communications and (703)872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

AB

December 29, 2003


JASON CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600